

**ICS 167**  
**MakeUp, Closed Book and Notes, Time 1h**  
**Attempt all questions. Use the additional sheets included with your exam to work**  
**out your solutions**  
**February 19th, 2015**  
**Prof. Magda El Zarki**

Student Name:

Student ID:

**Note: Answer all questions. Multiple Choice questions if answered wrong will be graded with a negative value, i.e., guessing the answer not a good idea! Use the worksheets in the back of the exam for extra workspace.**

1. What is the single greatest advantage of having a checksum cover only the datagram header and not the payload? 1pt What is the disadvantage? 1pt
2. Draw a figure to show the TCP/IP architecture model. 2pts
3. Explain the functionality of each layer. 6pts
4. Layered protocols hide all the underlying details from applications. Could an application software be optimized if an application knew about the underlying networks being used? Explain giving a specific example of a particular layer functionality and how it could impact the design of an application layer. 2pts
5. Explain what is meant by encapsulation? 2pts
6. Draw a figure showing the encapsulation of a TCP segment carried over an Ethernet network. 4pts
7. What field(s) in the IP header is/are changed by a router when processing a datagram for forwarding (assume no options). 3pts
8. IP Forwarding and IP routing, are they one and the same? Explain in your own words what they mean and outline the difference if any. 3pts
9. Define what is meant by “best effort” delivery. Give concrete points. 2pts
10. What is meant by a DHCP lease? Explain its functionality. 3pts
11. IP is considered the waistband of the Internet. Explain what that means and list, if any, exceptions to that rule. 3pts

## Answer Sheet

## Answer Sheet

## Work Sheet